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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,961	09/18/2003	Timothy Forrester	UTL 00173	8320

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EXAMINER	
NGUYEN, TUAN HOANG	
ART UNIT	**PAPER NUMBER**
2618	

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/665,961	FORRESTER, TIMOTHY	
	Examiner	Art Unit	
	Tuan H. Nguyen	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 6- 16, 18, 20 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Bruckert et al (US PAT. 6,018,651 hereinafter, "Bruckert").

Consider claim 6, Bruckert teaches a method of switching between a signal received over a first antenna or a second antenna by switching between the first antenna and the second antenna comprising: receiving a signal with a first antenna (see fig. 1 col. 5 lines 34-48); determining an error rate of the signal (col. 4 lines 37-47); comparing the error rate of the signal to a threshold (col. 14 lines 12-29); generating a control signal, responsive to the comparing, wherein the control signal determines whether the signal provided to a receiver is received over the first antenna or the second antenna (col. 4 lines 37-47); and providing the signal received over first antenna or the second antenna to the receiver based on the control signal (col. 4 lines 37-47).

Consider claim 7, Bruckert further teaches comparing the error rate of the signal to a threshold comprises comparing an average error rate of the signal over a period of time to a threshold (col. 20 lines 9-28).

Consider claim 8, Bruckert further teaches the error rate comprises an error rate selected from the group consisting of bit error rate, symbol error rate, and signal to noise ratio (col. 19 lines 36-55).

Consider claim 9, Bruckert further teaches providing the control signal to one or more amplifiers, wherein the control signal controls a level of amplification of the signal received over the first antenna and the second antenna (see fig. 1 col. 5 lines 34-48, the first pre-amplifier (item 135) is coupled to the first switch 118, the second pre-amplifier 139 is coupled to the second switch (item 120). The first switch (item 118), the second switch (item 120), are each coupled together at a single point at line (item 145) at an input to the receiver (item 126). The first switch 118 receives a first control signal at line 146. The second switch (item 120) receives a second control signal at line (item 148). Therefore they control a level of amplification of the signal received over the first antenna and the second antenna).

Consider claim 10, Bruckert further teaches slowly decreasing the amplification of a first amplifier coupled to the first antenna; while simultaneously, slowly increasing the amplification of a second amplifier coupled to the second antenna (col. 15 lines 6-

19).

Consider claim 11, Bruckert further teaches the steps of decreasing and increasing are performed over a period of time greater than or equal to two milliseconds (col. 19 lines 28-55).

Consider claim 12, Bruckert further teaches the method occurs within a wireless communication device (col. 4 lines 48-58).

Consider claim 13, Bruckert teaches a method of receiving a signal comprising: receiving a signal with a first antenna (see fig. 1 col. 5 lines 34-48); receiving the signal with a second antenna (see fig. 1 col. 5 lines 34-48); responsive to one or more control signals from a processor, amplifying either the signal received from the first antenna or the signal received from the second antenna to create an amplified signal (see fig. 1 col. 10 lines 1-9); directing the amplified signal to a processor (col. 5 lines 49-53); analyzing the amplified signal with the processor to determine an error rate associated with the amplified signal (col. 21 lines 9-63); comparing the error rate to a threshold value (col. 14 lines 12-29); and generating one or more control signals to control the amplifying if the comparing reveals that the error rate is greater than the threshold value (col. 14 lines 12-29).

Consider claim 14, Bruckert further teaches the comparing the error rate of the amplified signal to a threshold value comprises comparing an average error rate of the amplified signal to a threshold value (col. 20 lines 9-28).

Consider claim 15, Bruckert further teaches the threshold value comprises a maximum error rate value, such that error rates greater than the threshold value result in the processor generating a control signal to amplify the signal received from an alternate antenna (col. 14 lines 12-29).

Consider claim 16, Bruckert further teaches providing the control signal to a switch, wherein the switch is configured to direct either the signal from the first antenna or the second antenna the processor (col. 5 lines 41-48).

Consider claim 18, Bruckert teaches switching between a first input and a second input within a wireless communication device configured to received a signal comprising: a first conductive path having a first amplifier and first output (col. 5 lines 10-30); a second conductive path having a second amplifier and second output, wherein the first output and the second output are connected to a node (col. 5 lines 10-48); and a processor configured to receive a signal from the node and present control signals to the first amplifier and the second amplifier, wherein control signals selectively enable or disable the first amplifier and the second amplifier (col. 5 lines 34-54).

Consider claim 20, Bruckert further teaches the node comprises a switch (col. 5 lines 41-48).

Consider claim 22, Bruckert further teaches the first amplifier and the second amplifier amplify the signal prior to the signal arriving at the node (col. 5 lines 41-48).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5, 17, 21, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckert et al (US PAT. 6,018,651 hereinafter, "Bruckert") in view of Shoji et al. (U.S PAT. 6,768,464 hereinafter, "Shoji").

Consider claim 1, Bruckert teaches a system to reduce a data error rate associated with a signal received by a wireless communication device comprising: a first antenna configured to receive a signal (see fig. 1 col. 5 lines 34-48); a processor configured to determine an error rate associated the signal and generate one or more control signals (col. 21 lines 9-14); and a switching element, responsive to the one or

more control signals, configured to selectively provide either the signal received via the first antenna or the signal received vial the second antenna to the processor (col. 4 lines 37-47).

Bruckert does not explicitly show that a second antenna configured to receive the signal, the second antenna configured at least partially orthogonal to the first antenna.

In the same field of endeavor, Shoji teaches a second antenna configured to receive the signal, the second antenna configured at least partially orthogonal to the first antenna (col. 2 lines 6-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, a second antenna configured to receive the signal, the second antenna configured at least partially orthogonal to the first antenna, as taught by Shoji, in order to provide an antenna element and portable information terminal reduced in electrical signal loss and with high efficiency.

Consider claim 2, Bruckert further teaches the switching element comprises a voltage controlled switch (col. 2 lines 5-19).

Consider claim 3, Bruckert further teaches the switching element comprises a first amplifier and a second amplifier, wherein operation of the first amplifier and a second amplifier is controlled by the one or more control signals (col. 5 lines 34-48).

Consider claim 4, Bruckert further teaches a first amplifier located between the first antenna and the switching element and a second amplifier located between the second antenna and the switching element (col. 5 lines 34-48).

Consider claim 5, Bruckert further teaches the one or more control signals is generated in response to the error rate exceeding a threshold (col. 14 lines 12-29).

Consider claim 17, Bruckert teaches a method of receiving a signal comprising: receiving a signal with a first antenna (see fig. 1 col. 5 lines 34-48); receiving the signal with a second antenna (see fig. 1 col. 5 lines 34-48); responsive to one or more control signals from a processor, amplifying either the signal received from the first antenna or the signal received from the second antenna to create an amplified signal (see fig. 1 col. 10 lines 1-9); directing the amplified signal to a processor (col. 5 lines 49-53); analyzing the amplified signal with the processor to determine an error rate associated with the amplified signal (col. 21 lines 9-63); comparing the error rate to a threshold value (col. 14 lines 12-29); and generating one or more control signals to control the amplifying if the comparing reveals that the error rate is greater than the threshold value (col. 14 lines 12-29).

Bruckert does not explicitly show that first antenna is at least partially orthogonal to the second antenna.

In the same field of endeavor, Shoji teaches first antenna is at least partially orthogonal to the second antenna (col. 2 lines 6-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, first antenna is at least partially orthogonal to the second antenna, as taught by Shoji, in order to provide an antenna element and portable information terminal reduced in electrical signal loss and with high efficiency.

Consider claim 21, Bruckert teaches switching between a first input and a second input within a wireless communication device configured to received a signal comprising: a first conductive path having a first amplifier and first output (col. 5 lines 10-30); a second conductive path having a second amplifier and second output, wherein the first output and the second output are connected to a node (col. 5 lines 10-48); and a processor configured to receive a signal from the node and present control signals to the first amplifier and the second amplifier, wherein control signals selectively enable or disable the first amplifier and the second amplifier (col. 5 lines 34-54).

Bruckert does not explicitly show that the first conductive path connects to a first antenna and the second conductive path connects to second antenna and the first antenna is at least partially orthogonal to the second antenna.

In the same field of endeavor, Shoji teaches the first conductive path connects to a first antenna and the second conductive path connects to second antenna and the first antenna is at least partially orthogonal to the second antenna (col. 2 lines 6-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, the first conductive path connects to a first antenna and the second conductive path connects to second antenna and the first antenna is at

least partially orthogonal to the second antenna, as taught by Shoji, in order to provide an antenna element and portable information terminal reduced in electrical signal loss and with high efficiency.

Consider claim 23, Bruckert teaches a system for improving reception performance of a wireless communication device comprising: receiving a first signal (see fig. 1 col. 5 lines 34-48); amplifying the first signal (see fig. 1 col. 5 lines 34-48); amplifying the second signal (see fig. 1 col. 5 lines 34-48); processing configured to analyze the first signal and the second signal and, responsive to the analyzing, generate a control signal (col. 14 lines 12-29); and providing, responsive to the control signal, either of the first signal or the second signal to the processing (col. 4 lines 37-47).

Bruckert does not explicitly show that receiving a second signal, the receiving a first signal and the receiving a second signal are at least partially orthogonal.

In the same field of endeavor, Shoji teaches receiving a second signal, the receiving a first signal and the receiving a second signal are at least partially orthogonal (col. 2 lines 6-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, receiving a second signal, the receiving a first signal and the receiving a second signal are at least partially orthogonal, as taught by Shoji, in order to provide an antenna element and portable information terminal reduced in electrical signal loss and with high efficiency.

Consider claim 24, Bruckert further teaches processing further comprises comparing an error rate associated with the first signal or the second signal to a threshold value (col. 14 lines 12-29).

Consider claim 25, Bruckert further teaches error rates above the threshold value cause the processing to generate a control signal (col. 14 lines 12-29).

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckert et al (US PAT. 6,018,651 hereinafter, "Bruckert") in view of Bell (U.S PAT. 5,189,434).

Consider claim 19, Bruckert teaches switching between a first input and a second input within a wireless communication device configured to received a signal comprising: a first conductive path having a first amplifier and first output (col. 5 lines 10-30); a second conductive path having a second amplifier and second output, wherein the first output and the second output are connected to a node (col. 5 lines 10-48); and a processor configured to receive a signal from the node and present control signals to the first amplifier and the second amplifier, wherein control signals selectively enable or disable the first amplifier and the second amplifier (col. 5 lines 34-54).

Bruckert does not explicitly show that the node comprises a resistive network.

In the same field of endeavor, Bell teaches the node comprises a resistive network (col. 13 lines 44-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, the node comprises a resistive network, as taught by Bell, in order to provide an antenna feed network which increases the number of modes in which an antenna system can simultaneously transmit and receive signals.

Conclusion

6. Any response to this action should be mailed to:

Mail Stop_____ (Explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

(571) 273-8300

Hand-delivered responses should be brought to:

Customer Service Window

Randolph Building

401 Dulany Street

Alexandria, VA 22313

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is (571) 272-8329. The examiner can normally be reached on 8:00Am - 5:00Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maung Nay A. can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information Consider the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Quochien B. Vuong 6/26/06

QUOCHIEN B. VUONG
PRIMARY EXAMINER

Tuan Nguyen
Examiner
Art Unit 2618